

# **Bare Hill Pond Stormwater Treatment Project Q&A**

## ***What is the Stormwater Treatment Project?***

The Bare Hill Pond Watershed Management Committee (aka the Pond Committee) has applied for and received significant state and federal funding to treat stormwater runoff into the pond. Over the next three years, we will work with the town's DPW to manage the construction and upgrade of natural bioremediation facilities that are designed to remove the phosphorous and other pollutants that promote the growth of invasive weeds such as milfoil and fanwort in the pond.

## ***What problem are we trying to solve?***

Bare Hill Pond, one of the jewels of the town of Harvard, is succumbing to eutrophication --- the transformation of a pond from a clear body of water to a marsh-like wetland choked with plant growth. The Pond has become highly susceptible to invasive weed growth due to its relatively shallow depths, the rich nutrients in its peaty bottom, and the continuing inflow of pollutants from its upstream wetlands. We are already experiencing the resulting decline in water quality and impact on recreational use. Without timely and dramatic action we will face the inevitable loss of the Pond. The situation is so critical that in 1999, the Massachusetts Department of Environmental Protection put Bare Hill Pond on its list of endangered ponds. To view a collection of reports detailing the invasive weed situation in the Pond, click [here](#) on the [Bare Hill Pond Studies](#) page.

So far, we've only been able to address the immediate problem -- the invasive weeds that are already in the pond -- with weed harvesting, weed pulls, and drawdowns. For a longer-term fix, we have to address the underlying cause, the ongoing flow of pollutants and phosphorous into the pond from the watershed along with the concentration of phosphorous in organic peat on the Pond bottom.

## ***The “good” news in endangered pond status?***

The “good” news is that the endangered status of our pond makes us eligible for federal (EPA) funds administered by the MA Dept. of Environmental Protection (DEP) to fix the problem, and we've been using these funds and significant volunteer efforts over the past several years to address the immediate issue (Click [here](#) to view the detailed [Bare Hill Pond Management Strategy](#) document).

## ***How does Stormwater affect our weed control and water quality efforts?***

Stormwater brings in large amounts of eroded sediment from the steep areas around town the center, along with salt from the busy roads and the heavily used parking areas near the schools and library. Phosphorous, a major contaminant in stormwater, comes from lawn fertilizers used by residents within the watershed and from leaky septic systems near the pond. These pollutants need to be controlled to address the long term risk of eutrophication.

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### ***How do we plan to address the Stormwater problem?***

The Pond Committee has been studying and planning longer-term measures for several years to reduce upstream pollutants and the existing, rich nutrient base in the bottom of the pond. We have consulted with state experts from the Department of Environmental Protection (DEP), attended seminars and meetings of the Massachusetts Congress of Lakes and Ponds (COLAP), and consulted with watershed experts from other Massachusetts towns. Based on what we learned, we are pursuing implementation of stormwater treatment systems to safely and naturally treat the major sources of runoff and pollutants – before they enter the pond. The area with the greatest opportunity to reduce nutrient flow is the northeast edge of Bare Hill Pond near the schools and Pond Road, the topography of which causes large amounts of untreated stormwater from the roads and streams to pour into the pond. That is where we will focus our efforts.

### ***Where are we in the process of creating Stormwater Treatment facilities?***

In 2008, we engaged the design firm of Horsley Witten, recognized experts in the field of stormwater management, to design a comprehensive solution to this problem. Based on the unqualified success of our prior watershed management efforts and the merits of this proposed stormwater management program, we applied for and the folks at the MA DEP have awarded us the first part (\$290,950) of a grant. We presented the project at the Town Meeting in the spring of 2009, and voters overwhelmingly approved it. Since that time, the Pond Committee, in concert with the DPW, Parks and Recreation Commission, and other town boards, has continued working with Horsley Witten to finalize design and construction plans, and prepare for contractor bidding and the start of construction in the spring of 2010.

### ***Where will these Stormwater Treatment facilities be built?***

Over the next three years, the Stormwater Treatment Project will construct treatment facilities in seven locations around the schools, ball fields, and Pond Road (to view a [map](#) of these locations, click [here](#)). The seven sites are:

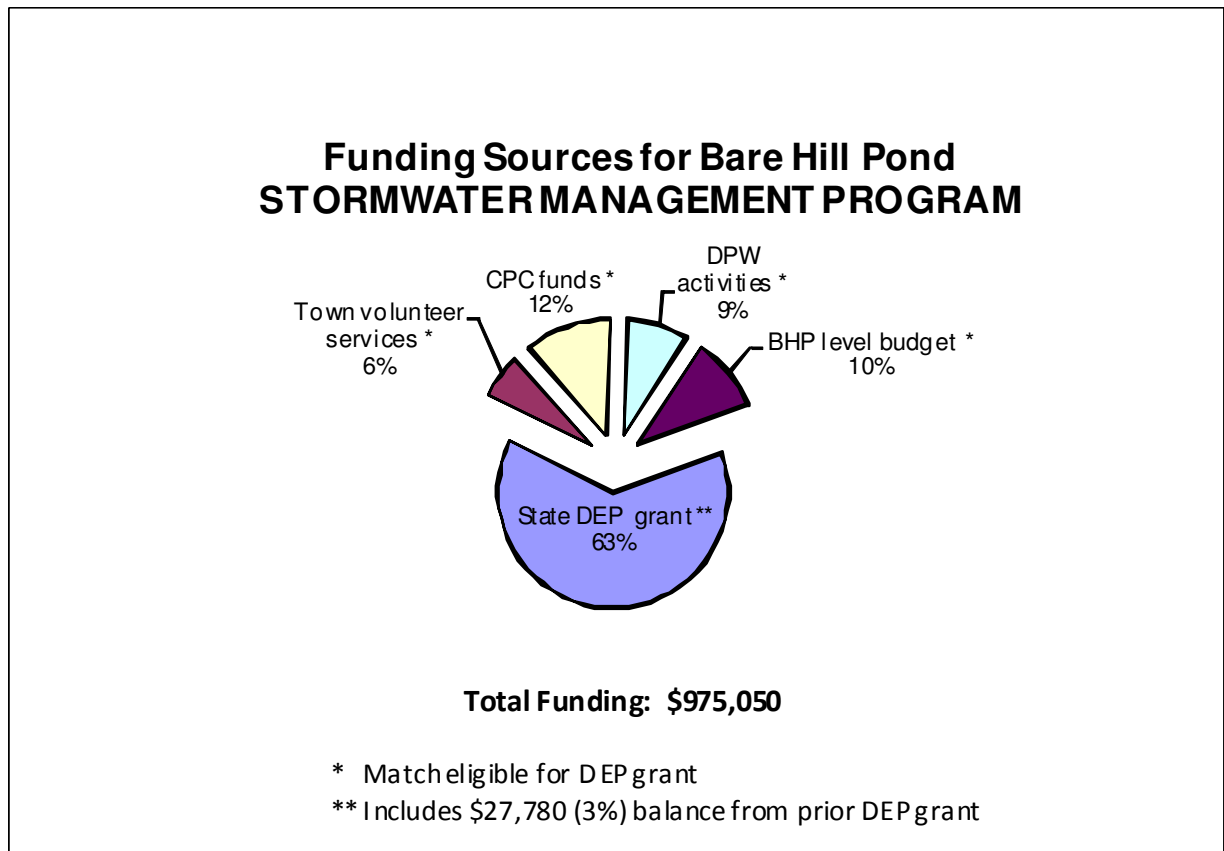
- BHP-2, behind Bromfield School, retrofit of existing detention ponds to improve capability.
- BHP-3, behind Bromfield, near the baseball / soccer fields
- BHP-4, part-way down Pond Road
- BHP-5, Harvard Elementary ball field on Mass. Ave.
- BHP-6, Bromfield School entrance
- BHP-7 and BHP-8, Town Beach at the bottom of Pond Road

### ***What kinds of Stormwater Treatment facilities will be constructed?***

The treatment facilities will use industry best management practices (BMPs) and include a variety of bioretention systems, plantings, gravel wetlands, dry swales, and grass channels. These practices are viewed by experts as Low Impact Development (LID) practices and according to Horsley Witten, have a proven track record of better pollutant removal capabilities than more conventional practices.

### ***How will the Town pay for this?***

DEP has awarded us the first part of a two-part grant totaling \$584,950. This plus \$27,780 in prior DEP grant reserves will be matched by \$302,340 of town funding over the next three years (FY10-FY12), comprised of \$82,736 in DPW-provided services, \$100,500 in level-funded Pond Committee operating expenditures (\$33,500/year), and \$119,104 in FY10 CPC funds, as well as \$60,000 in match-eligible volunteer services. ***So only 31% of the total cost is being paid from Town funds***, and a portion of these will use previously allocated (e.g. CPC) funds. Thus, this project will require **NO OVERRIDES**.



### ***What is the schedule for the project? When will construction begin?***

The construction of the first stormwater treatment systems will begin late in the spring of 2010 and continue through the summer and fall. Each site's construction will require between three and 8 weeks. We will publish a more detailed schedule in the town's newspapers and on our web site.

### ***Will project construction activities impede use of the beach or ball fields?***

Yes, for brief periods. Parks & Recreation has reviewed construction plans with DPW to time the construction at each site so that all or most regularly scheduled sports and other town activities and uses of these sites can go on without interruption. For example, work on the sites near the town beach will be planned for October and November, and work on the Bromfield ball fields will be scheduled to take place after school is closed in June. Preparations will include installing construction fences to cordon off areas under development from recreational activities. We will continue to work closely with Park & Rec and

DPW to minimize the impact, and will keep the town informed of the detailed schedule and changes on the town's web site.

### ***Will this rid us of our invasive weed problem?***

We believe this project will significantly reduce the nutrients and pollutants entering the pond, which should help reduce the rate of weed growth and improve water quality. The project's goal is reducing the phosphorous level (total maximum daily load, aka TMDL) in Bare Hill Pond from 0.044 mg/l to the EPA-recommended level of 0.03 mg/l. TMDLs generally are used to establish the amount of phosphorous a water body can receive and still support its intended uses. In combination with our other weed control practices, including drawdowns, harvesting, and volunteer weed pulls, treating the stormwater before it enters the pond will significantly improve the water quality.

### ***Will the project have any adverse impact on the environment?***

No. Based on our research and consultations with water quality and stormwater treatment experts. The treatment of pollutants and phosphorous using low-impact BMPs such as bioretention systems, plantings, and grass swales, will improve our ability to manage our environment, including the pond and surrounding watershed. As part of the project we will continue to monitor the watershed to assure its protection. Monitoring will include measurement of the invasive species at defined measurement points, periodic water quality monitoring in the Pond and in the input streams to determine the impact of the project, amphibian and reptile surveys, downstream wetlands surveys, fish surveys, and other wildlife counts.

### ***What can you do to help?***

- Get involved with our various pond management activities, e.g. summer weed pulls, frog counts and other monitoring activities. Spread the word to others in town and encourage their participation too.
- Learn about things you can do to keep the pond clean and free of weeds, e.g. eliminating use of fertilizers on lawns that border the pond. The Pond Committee will be hosting events throughout the year to improve awareness and understanding of watershed health and things we can each do to help. Check the Post or Press or the town web site for updates.
- Contact the Pond Committee if you have any ideas, suggestions, or concerns about the health of the pond and the watershed. The names of committee members are listed on the town's web site.